

Part 1 Written Response

1. Explain what it means that -3 and -2 are both **solutions** to the quadratic equation $x^2 + 5x + 8 = 2$.

Both -3 and -2 make the equation true when they're substituted in for x.

2. What does it mean to **factor** an expression? Write a definition and give an example.

Factoring an expression means breaking it down into pieces that multiply to the original expression.

Example: 20 factors to $4 \cdot 5$, or $3x+6$ factors to $3(x+2)$

3. When you solve a quadratic equation by **factoring**, you always set the equation to zero first. Why?

Because if you have factors that multiply to zero, one of the factors must be zero. You can use this fact to easily solve the equation. For example, if $(x+5)(x-3)=0$, then it's easy to see that the solutions are -5 and 3.